

CLAIMS

[1] An optical filter for varying the optical characteristics of a ray transmitted by an optically anisotropic crystal plate,

5 wherein at least one optically anisotropic crystal plate and at least one substrate are stuck together in a state in which a principal face of the optically anisotropic crystal plate and a principal face of the substrate are perpendicular to the direction of transmission of the ray, and

10 the optically anisotropic crystal plate or the substrate is used as an end face on a ray incident side, and another optically anisotropic crystal plate or another substrate that is thinner than the optically anisotropic crystal plate or the substrate that is the end face on the ray incident side is stuck onto the optically anisotropic crystal plate or the substrate.

15 [2] An optical filter for varying the optical characteristics of a ray transmitted by an optically anisotropic crystal plate,

20 wherein at least one optically anisotropic crystal plate and at least one substrate are stuck together in a state in which a principal face of the optically anisotropic crystal plate and a principal face of the substrate are perpendicular to the direction of transmission of the ray, and

25 the optically anisotropic crystal plate or the substrate is used as an end face on a ray exit side, and another optically anisotropic crystal plate or another substrate that is thinner than the optically anisotropic crystal plate or the substrate that is the end face on the ray exit side is stuck onto the optically anisotropic crystal plate or the substrate.

[3] An optical filter for varying the optical characteristics of a ray transmitted by an optically anisotropic crystal plate,

30 wherein at least one optically anisotropic crystal plate and at least one substrate are stuck together in a state in which a principal face of the optically

anisotropic crystal plate and a principal face of the substrate are perpendicular to the direction of transmission of the ray,

the optically anisotropic crystal plate or the substrate is used as an end face on a ray incident side, and another optically anisotropic crystal plate or another substrate that is thinner than the optically anisotropic crystal plate or the substrate that is the end face on the ray incident side is stuck onto the optically anisotropic crystal plate or the substrate, and

the optically anisotropic crystal plate or the substrate is used as an end face on a ray exit side, and another optically anisotropic crystal plate or another substrate that is thinner than the optically anisotropic crystal plate or the substrate that is the end face on the ray exit side is stuck onto the optically anisotropic crystal plate or the substrate.

[4] The optical filter according to any of Claims 1 to 3, wherein the substrate is a glass substrate.

[5] The optical filter according to any of Claims 1 to 3, wherein the substrate is used for both end principal faces of the optical filter, and a portion of the substrate is given an optical coating.

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[6] The optical filter according to any of Claims 1 to 3, wherein the substrate is used for both end principal faces of the optical filter, and these substrates have the same thickness.

25 [7] The optical filter according to any of Claims 1 to 3, wherein the optically anisotropic crystal plate and the substrate are stuck together with a UV adhesive.

[8] The optical filter according to Claim 7, wherein the thickness of the 30 UV adhesive is no more than 1/20 the thickness of at least one of the optically

anisotropic crystal plate and the substrate.

[9] The optical filter according to Claim 7, wherein an amorphously bonded optical coating is formed on the ray incident side end face and/or the 5 exit side end face.

[10] The optical filter according to any of Claims 1 to 3, which is a phase plate wherein a plurality of optically anisotropic crystal plates of different thickness are layered over one another, an incoming ray is split into an 10 ordinary ray and an extraordinary ray, and the optical characteristics of the incoming ray are varied by a phase between these two rays.

[11] The optical filter according to any of Claims 1 to 3, which is an optical low pass filter wherein an incoming ray is split into an ordinary ray and an 15 extraordinary ray by the optically anisotropic crystal plate, and the optical characteristics of the incoming ray are varied by imparting specific optical separation direction and specific separation width between these two rays.